Navajo Tribal Utility Authority

Primary Multi-utility provider on the Navajo Nation

Electricity, Water, Natural Gas, Wastewater Treatment, Renewable Energy, and Communications
• Created in 1959

• A non-profit enterprise of the Navajo Nation

• Today – NTUA continues to address the multi-utility needs of the Navajo Nation

• Service Territory – 27,000 square miles across the Navajo Nation

• Seven District Offices – serve as a central point for business operations

• Extends – Electricity, Water, Wastewater Treatment, Natural Gas, Renewable Energy

• Recently added: Communications – Internet, Cell Phone, and Data Storage Services
Navajo Nation – Southwest USA

- 186,500 Citizens
- Territory larger than West Virginia
- Unemployment rate of 48.5% - (9 times current U.S. average)
- 38% of Navajo people live below poverty line
- Avg per capita income of $10,695 vs U.S. avg of $39,791
Organizational Structure

Customers

Navajo Nation Council

Natural Resources & Development Committee

NTUA Management Board

Navajo Tribal utility Authority
Management Board

Navajo Tribal Utility Authority

Sidney Bob Dietz II
Chairperson

Jackson Slim Brossy
Vice Chairperson

Wynette R. Arviso
Member

William H. Clagett
Member

Belinda P. Eriacho
Member

Raymond Holgate
Member

Alton Joe Shepherd
Member
NTUA MISSION
To provide safe, reliable, and affordable utility services that exceed our customers’ expectations
NTUA VISION
Enhancing our customers’ lives through excellent utility services
25% of homes on Nation are traditional dwellings

31% of all homes lack plumbing
38% lack water
86% lack natural gas

28% lack kitchens
32% lack electricity
60% lack landline phone services
## NTUA District Customer Count

**As of December 2016**

<table>
<thead>
<tr>
<th>Districts</th>
<th>Electric</th>
<th>Natural Gas</th>
<th>Water</th>
<th>Wastewater</th>
<th>Solar</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHINLE</td>
<td>10,546</td>
<td>1,627</td>
<td>6,926</td>
<td>2,066</td>
<td>16</td>
<td>21,181</td>
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<tr>
<td>CROWNPOINT</td>
<td>545</td>
<td>467</td>
<td>5,843</td>
<td>1,454</td>
<td>18</td>
<td>8,327</td>
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<tr>
<td>DILKON</td>
<td>4,095</td>
<td>640</td>
<td>2,659</td>
<td>1,054</td>
<td>26</td>
<td>8,474</td>
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<tr>
<td>FORT DEFIANCE</td>
<td>9,310</td>
<td>2,968</td>
<td>7,928</td>
<td>3,385</td>
<td>4</td>
<td>23,595</td>
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<tr>
<td>KAYENTHA</td>
<td>4,662</td>
<td>72</td>
<td>3,113</td>
<td>1,170</td>
<td>39</td>
<td>9,056</td>
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<tr>
<td>SHIPROCK</td>
<td>9,558</td>
<td>2,030</td>
<td>8,763</td>
<td>2,700</td>
<td>18</td>
<td>23,069</td>
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<tr>
<td>TUBA CITY</td>
<td>2,517</td>
<td>61</td>
<td>3,940</td>
<td>2,127</td>
<td>52</td>
<td>8,697</td>
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<tr>
<td><strong>Total</strong></td>
<td>41,233</td>
<td>7,865</td>
<td>39,172</td>
<td>13,956</td>
<td>173</td>
<td>102,399</td>
</tr>
</tbody>
</table>
Water/Waste Water Lines On The Navajo Nation

NTUA Water Service Area

5,576 Miles of Water Lines
32,964 Customers
2,705,215,905 Gallons Delivered Annually
234 Water Wells
139 Booster Stations
330 Water Storage Tanks
89 Water Systems
# Other Area Utility Service Providers

Navajo Nation

<table>
<thead>
<tr>
<th>Electric</th>
<th>Natural Gas</th>
<th>Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Service Company of New Mexico</td>
<td>Propane Vendors</td>
<td>City of Page</td>
</tr>
<tr>
<td>Continental Divide Electric Cooperative (CDEC)</td>
<td>Public Service Company of New Mexico</td>
<td>Lower Valley Water Users-Kirtland</td>
</tr>
<tr>
<td>Arizona Public Service Company</td>
<td></td>
<td>Navajo Nation</td>
</tr>
<tr>
<td>City of Farmington</td>
<td></td>
<td>City of Farmington</td>
</tr>
<tr>
<td>City of Gallup</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


# Community Power Line Projects

## Historical Cost Summary

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Miles of Line</th>
<th>Number of Homes</th>
<th>Cost Per Mile</th>
<th>Cost Per Customer</th>
<th>Customers Per Mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>72.14</td>
<td>159</td>
<td>$89,666.75</td>
<td>$40,682.76</td>
<td>2.20</td>
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<tr>
<td>2015</td>
<td>54.17</td>
<td>59</td>
<td>$45,579.14</td>
<td>$41,847.83</td>
<td>1.09</td>
</tr>
<tr>
<td>2014</td>
<td>82.32</td>
<td>125</td>
<td>$60,860.06</td>
<td>$40,080.00</td>
<td>1.52</td>
</tr>
<tr>
<td>2013</td>
<td>68.82</td>
<td>119</td>
<td>$60,979.46</td>
<td>$35,265.60</td>
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<tr>
<td>2012</td>
<td>86.59</td>
<td>165</td>
<td>$42,067.85</td>
<td>$22,076.70</td>
<td>1.91</td>
</tr>
<tr>
<td>2011</td>
<td>113.41</td>
<td>192</td>
<td>$39,276.01</td>
<td>$23,199.44</td>
<td>1.69</td>
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<tr>
<td>2010</td>
<td>146.74</td>
<td>254</td>
<td>$37,985.95</td>
<td>$21,945.11</td>
<td>1.73</td>
</tr>
</tbody>
</table>
Workforce Enrichment
Ten Year Trend (2005 – 2016)

Navajo

- 2005: 511
- 2006: 506
- 2007: 510
- 2008: 561
- 2009: 579
- 2010: 620
- 2011: 648
- 2012: 652
- 2013: 673
- 2014: 694
- 2015: 689
- 2016: 730

Trend
Other
Communications grant is ‘chance of a lifetime’

By Ellen Zeh
Navajo Times

WINDOW ROCK — Now that the Navajo Tribal Utilities Authority has been awarded a $3.2 million federal grant to build a fiber optic broadband network on the Navajo Nation, Walter Haase, NTUAs general manager urged NTUA employees to heed this opportunity.

“This is one chance of a lifetime. If we don’t perform here, the chance that we’ll get another opportunity (to access funding to build a large scale network) will be next to nil,” he said to about 60 employees gathered for a quarterly staff meeting March 31 at the Navajo Nation Museum.

With NTUA pushing to lay 330 miles of fiber optic cable and build 33 new microwave towers in the next three years, Haase said the fact that NTUA has received the grant sends a statement to the nation. The total cost of the project is expected to be about $46 million.

“This system will be the most advanced system in America — not South America — in the United States,” he said. Even though the Navajo Nation will be one of the few test sites in the country to deploy a Long Term Evolution fiber optic cable that allows for data transfer speeds of up to 100 megabits per second, the idea of creating such a network has been in the works for years.

NTUA Director Brian Tagaban, executive director of the Navajo Nation Telecommunications Regulatory Commission, said NTUA’s latest project started with a council resolution that called for the establishment of the Navajo Nation Broadband Work Group. The group, which was formed in July, sought ideas about how to bring broadband technology to Dinétah.

He said some of the ideas included satellite and wide spectrum wireless technology, but the work group preferred fiber optic because the technology promises almost limitless capacity. Each strand of the cable potentially could transfer up to 40 gigabits per second of information, making the 96-strand cable capable of relaying 3.75 terabytes of information using fixed locations.

“We don’t know (the future technology). There could be something beyond video — talking with 3-D holograms,” he said. “We’re just trying to lay down the road.”

Add that potential to the money released through the American Recovery and Reinvestment Act last year.

Tagaban and his group selected NTUA to help create the fiber optic network because the utility has experience hanging long-range fiber line, rights of way, and most importantly, the line would be Navajo-owned.

“The network (needed) to be Navajo-owned,” Tagaban said.

Haase agreed that NTUA was in the position to push to build a LTE network.

“We recognized that there have been several other attempts by organizations to provide Internet service and broadband to the nation and to modernize it, and yet those failed. So we felt we were in the best position to actually come with a plan that we felt could work,” he said.

According to the grant, at least two-thirds of the network has to be in operation within two years.

Haase said the final third should be completed by the end of the third year.

The network cable will start in Farmington and set up eventually into Yahi-ta-hey, N.M., then west to the Arizona side of the Navajo Nation.

Haase said they chose Farmington as the starting point because there’s already a fiber optic cable connecting Farmington to Albuquerque, which is a large Internet hub. He hopes the Yah-tyahey portion of NTUA’s cable can be connected to Albuquerque as well.

Plans call for the LTE line to extend through Window Rock to Tuba City, Chiaia and Kayenta, though Haase didn’t identify which portions of the project will come after the Farmington-Yahi-tahey segment is completed.

Haase said most of the Navajo Nation now has a 2G — for “second generation” — network. Second-generation data transfer speeds average about 56 kilobits per second.

The LTE fiber optic line will be the most advanced type of wireless network now known, called a 4G — for “fourth generation” — network with data transfer speeds up to 5G megabits per second.

With that type of upgrade, Cochita Dominguez manager Bob Manyules said his business could start Web commerce, enabling customers to place their orders online. In addition, he envisions other applications where he could manage the restaurant via video by phone or computer, while he explores expanding the restaurant’s other business ventures.

“If we had a 4G network here, I’d like to make use of it,” Manyules said.

Some basics about broadband

Digital information is stored in “bits,” short for binary digits. Each word in this article, for instance, is composed by the computer making one of two choices, 0 or 1, yes or no, black or white. Put together, all these choices result in a picture that looks like a word, then a sentence, and finally a story. (That’s assuming the computer is running an editing program. A math program would produce math-related images, a photo program would produce photos, etc.)

The bits are stored in the computer’s memory in groups of eight, called a “byte.” Because it takes so many bytes to create even a short article, they are generally counted by the thousands (kilobytes, or KB), millions (megabytes, or MB), billions (gigabytes, or GB), etc.

The transfer of digital information is measured in bits per second. Very high-speed data transfer is often called “broadband,” meaning a large quantity of bits can be sent at the same time.

Currently, most high-speed data transmission on the Navajo Nation takes place in kilobits per second, but the technology that the Navajo Tribal Utility Authority and others are now developing will eventually enable speeds of a gigabit, or even a terabit (a trillion bits) per second.
NTUA
Navajo Nation Middle/Last Mile Project: Quality Broadband for the Navajo People

• In 2010 NTUA was notified that the “Navajo Nation Middle/Last Mile Project: Quality Broadband for the Navajo People” will receive a $32 million grant

• Awarded through the American Recovery and Reinvestment Act (ARRA). Administered by the US Department of Commerce

• At the time, it was the largest Broadband grant awarded throughout the United States – first largest for Indian Country

• NTUA went to work to build a fiber optic network communications and microwave infrastructure
• Established a successful partnership with Commnet – experts in wireless communications

• Extends fiber over 550 miles

• Amplifies NTUA’s existing microwave network to provide broadband access to major NN communities

• Included - 96 strands of aerial fiber optic cable and 59 microwave tower sites.

• Offers 4G LTE project itself, provides fixed and mobile service

Successful partnership created a high quality, more reliable internet, wireless and broadband connectivity for benefit of the Navajo people
New technology - Data Storage

A fully certified Tier 3 Data Center

First time the Navajo Nation is home to a high level Data Storage facility

Only certified Tier 3 in the northwest region
Navajo Nation nearing completion of broadband project

$46 million project to connect more than 30,000 households and 1,000 businesses

By Jenny Kane
The Daily Times

FARMINGTON — The Navajo Nation is about to get connected with the help of a tribal owned company.

Now in its final stages, a nearly $46 million dollar project is expected to create a broadband network that will give more than 30,000 households and 1,000 businesses access to improved wireless Internet service and cell phone service.

An additional 1,100 community institutions, including public safety, health, social services and emergency care facilities are expected to benefit from the new infrastructure.

“It’s a very complex project, and the Navajo Nation is very, very good at doing things like this,” said Joseph Chama, manager of the Navajo Tribal Utility Authority Wireless, first Navajo majority owned broadband company.

The company is a joint venture between the utility authority, which owns 51 percent of the company, and CommNet Wireless, which owns the rest.

The project began about three years ago, when the U.S. Department of Commerce National Telecommunications and Information Administration awarded the utility authority a $32.2 million grant from the American Recovery and Reinvestment Act.

The utility authority committed another $11.3 million in contributions, and CommNet, another $2.2 million.

The company’s product eventually will be available from nearly half of the tribe’s land, which spans about 27,000 square miles.

The area is notorious for shoddy cell phone and wireless Internet service.

The vastness of the land, and its lack of existing infrastructure, posed challenges throughout the project for those trying to create a network.

“It has a very unique terrain,” Scully said.

Still, the company has completed most of the construction. The project includes 550 miles of fiber optic cable and 32 new communications towers.

Another 27 existing communications towers were modified.

The fiber optic cable, which is cable containing optical fibers that carry data, runs between various locations.

The longest, spanning 161 miles, runs between Farmington and Yah-ta-Hey. Others range from 20 to 30 miles.

Employees with Navajo Tribal Utility Authority Wireless work at a data center in Shiprock on an unknown date.

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News Column

Udall Visits Navajo Broadband Data Center that Puts Tribe 'Among the Clouds'

October 22, 2013
Introducing Choice NTUA Wireless

The ultimate goal and mission of NTUA Wireless is to reduce the lack of affordable, high quality wireless internet services on the Navajo Nation – while establishing a sustainable Majority Owned Navajo wireless communication business.

Navajo Owned – Navajo Proud

No other Cellular Service on Navajo Can Say That
Fort Defiance Grand Opening
NTUA Wireless is 51% owned by NTUA and 49% owned by Commnet.

The FCC granted NTUA Wireless Eligible Telecommunications Carrier status for all eligible residents for the entire Navajo Nation.

NTUA Wireless has three primary business units: 1) wholesale wireless; 2) retail customers; and 3) enterprise business.

The retail wireless unit for NTUA Wireless primarily utilizes 3G wireless service for its customers.

As of December 2016, NTUA Wireless has over 20,000 retail customers.
The retail wireless unit for NTUA Wireless currently utilizes 3G and 4G wireless & broadband services. Currently, there are over 20,000 retail customers.

Wireless home phone service
83 new jobs were created
6 retail stores & mobile teams

As part of the Middle Mile support needed to operate NTUA Wireless' last mile service, NTUA created a communications department that consistent of a total of 39 employees, with 20 at the Data Center and 19 within the general communications support.
NTUA Call Center

Improving Our Customer Service While Creating Jobs
Legislation could flip the switch in Aneth

BY CINDY YURTH
TSÉYI’ BUREAU

CHINLE — Legislation passed Tuesday by the Navajo Nation Council could clear the way for NTUA to provide electricity to 300 families in the Aneth area.

But it’s bad news for one of the major power consumers in the area, Navajo Nation Oil & Gas Co.

“It’s the first time I can recall that two of our enterprises were at odds over a piece of legislation,” said Navajo Nation Council Delegate Davis Filfred (Aneth/Mexican Water/Red Mesa/Teece Nos Pos/Tólikan), who sponsored Legislation 122-15.

“I think it was (Delegate) Leonard Pete (Chinle) who said it was like when two of your children are fighting, and you have to decide which one to spank and which one to hug.”

In the end, “the Council decided getting electricity to 300 families, grandmas and grandpas was more important than our corporation getting a good deal on power.”

providing power to that area of the Navajo Nation since UPL signed an agreement with the tribe in 1959, “but the deal was that if the tribe ever wanted to purchase those properties, the company would sell them to them,” explained Dave Eskelsen, spokesman for Rocky Mountain Power.

In late 2013, NTUA and Rocky Mountain Power came up with an agreement for the sale, but it was waiting on approval from both the tribe and utility regulators in Utah.

The problem with Rocky Mountain Power, said Filfred, was that it ran the power lines primarily to serve the oil industry in the area and never had any incentive to expand its operations to residential customers.

“If you go out there, you’ll see people living right under power lines who have no electricity,” Filfred said.

This specialization, however, allowed Rocky Mountain to offer good rates to the oil companies — including Navajo Nation Oil & Gas after it purchased wells in the area.

“We purchase about 20 megawatts nothing to improve the situation of the families in Aneth. Now they’re struggling, and they want NTUA, a non-profit, to subsidize their rates.”

NTUA has agreed to leave the companies’ existing rate structure in place until 2017, which should be time for them to figure something out, Clah said.

“We’ve been trying to work with them for four years,” she said. “If they had put as much energy into negotiating with us as they have into lobbying against this legislation, perhaps we would have come up with something a little better for them.”

Eskelsen said the dollar amount of the purchase is still under wraps until it is finalized, and the deal still has to be approved by the Utah Public Service Commission, although he didn’t see any reason for that entity to oppose the transfer.

“Generally it’s a couple of weeks to a couple of months,” he said.

Clah said NTUA is hoping both the purchase and the expansion of the power grid can be done at no cost to NTUA’s ratepayers.
Solar Hybrid Units
Small Scale Solar Energy Systems

Dilkon, Arizona

Fort Defiance, Arizona

Chinle, Arizona

Crownpoint, New Mexico
You are Invited
Please Mark the Date

The Navajo Tribal Utility Authority is very happy to announce the historic groundbreaking of the NTUA Kayenta Solar Utility Facility
Saturday, April 23, 2016 – 10:00 am

The event site is about five miles north of the Kayenta, Arizona community on the way to Monument Valley.
It is visible just off the main highway. Lunch will be served.
For any questions, please call Deenise Becenti at 928-729-6221.
We hope you join us.
Nearing Completion – March 2017
Provided Short-term Construction Jobs
Started w/ 80 – 200 at peak
Our Commitment is to our customers and to uphold our values

NTUA VALUES

1. CUSTOMER EXPERIENCE
2. SAFETY AND HEALTH
3. INTEGRITY
4. TEAMWORK
5. ACCOUNTABILITY
6. COMMUNITY ENGAGEMENT AND SUPPORT
7. RESPECT